Remarks

Claims 1, 3-10, 12-14, 16 and 18-20 are pending in the application.

Claims 1, 3-10, and 12-14, 16 and 18-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Maddocks U.S. Patent 6,483,616 B1, hereinafter "Maddocks" in view of U.S. Rowley U.S. Patent 4,833,668, hereinafter "Rowley".

Each of the various rejections is overcome by various amendments and arguments that are presented.

Entry of this Amendment is proper under 37 CFR 1.116 since the amendment: (a) places the application in condition for allowance for the reasons discussed herein; (b) does not raise any new issue requiring further search and/or consideration since the amendments amplify issues previously discussed throughout prosecution; (c) satisfies a requirement of form asserted in the previous Office Action; (d) does not present any additional claims without canceling a corresponding number of finally rejected claims; or (e) places the application in better form for appeal, should an appeal be necessary. The amendment is necessary and was not earlier presented because it is made in response to arguments raised in the final rejection. Entry of the amendment is thus respectfully requested.

Any amendments to any claim for reasons other than as expressly recited herein as being for the purpose of distinguishing such claim from known prior art are not being made with an intent to change in any way the literal scope of such claims or the range of equivalents for such claims. They are being made simply to present language that is better in conformance with the form requirements of Title 35 of the United States Code or is simply clearer and easier to understand than the originally presented language. Any amendments to any claim expressly made in order to distinguish such claim from known prior art are being made only with an intent to change the literal scope of such claim in the most minimal way, i.e., to just avoid the prior art in a way that leaves the claim novel and not obvious in view of the cited prior art, and no equivalent of any subject matter remaining in the claim is intended to be surrendered.

Also, since a dependent claim inherently includes the recitations of the claim or chain of claims from which it depends, it is submitted that the scope and content of any dependent claims that have been herein rewritten in independent form is exactly the same as the scope and content of those claims prior to having been rewritten in independent form. That is, although by convention such rewritten claims are labeled herein as having been "amended," it is submitted that only the format, and not the content, of these claims has been changed. This is true whether a dependent claim has been rewritten to expressly include the limitations of those claims on which it formerly depended or whether an independent claim has been rewritten to include the limitations of claims that previously depended from it. Thus, by such rewriting no equivalent of any subject matter of the original dependent claim is intended to be surrendered. If the Examiner is of a different view, he is respectfully requested to so indicate.

Rejections Under 35 U.S.C. §103(a)

Claims 1, 3-10 and 12-14, 16 and 18-20

Claims 1, 3-10, and 12-14, 16 and 18-20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Maddocks in view of Rowley. The rejection is respectfully traversed.

The applicant respectfully reiterates that neither Maddocks, Rowley, nor Maddocks in view of Rowley teach or suggest the claimed "**counter-propagating** supervisory channel." Maddocks teaches supervisory and data signals on light guides 5 and 6, but propagating in the *same* direction **with respect to each other**. In contrast, the invention claims supervisory and data signals propagating in the *opposite* direction (i.e. "counter propagating") **with respect to each other**.

Describing the supervisory signal's origination on light guide 5, Maddocks states "a relatively low power supervisory channel signal is generated at supervisory insert unit 9...and is added to the fiber 5 by optical coupler 30 (drawing; col. 2, lines 33-36). Describing the supervisory signal's termination at the end of light guide 5, Maddocks states "at the switching unit 2, the supervisory channel is extracted by optical coupler 31

and passed to extract unit 10" (drawing; col. 2, lines 47-48). Hence, with respect to the Maddocks drawing, the supervisory signal on light guide 5 clearly propagates from **left to right**.

Maddocks then explains that the data signal identically propagates **left to right** on light guide 5), with:

> "The switch 3 generates, by means of an optical multiplexer not separately shown, a number of separate optical channels at different optical carrier wavelengths each of which carries voice and/or data traffic. These channels are sent along a common light fibre 7...to an optical amplifier 8...to the distant switching unit 2 via optical fibre 5." (drawing, col. 2, lines 24-32)

Thus, it is evident that the supervisory channel and data signals on Maddocks' light guide 5 are traveling in the same direction (i.e. co-propagating) **with respect to each other**, that is they are both traveling from **left to right** on light guide 5.

In the exact same manner, a supervisory signal is "co-propagated" **with respect to a data channel** on light guide 6. Maddocks explains:

> "The fibre 5 carries a **unidirectional** signal from switching unit 1 to switching unit 2. The similar optical fibre 6 carries a **unidirectional** signal from switching unit 2 to switching unit 1, and has associated with it an amplifier 15, supervisory insert unit 16, optical couplers 32 and 33, supervisory extract unit 17 and amplifiers 18 **in an analogous manner**." (col 3, lines 57-62, emphasis added)

Thus, **both** the supervisory channel and data signals on Maddocks' light guide 6 are also co-propagating, not "counter-propagating".

In addition to the specification clearly describing that the Maddocks supervisory and data channels co-propagate on light guides 5 and 6 with respect to each other, so too even does the Maddocks drawing just by itself. Regarding light guide 5, the arrows coming out of supervisory insert 9 and leading into supervisory extract unit 10 are in the same forward direction as optical amplifiers 8 and 11. Regarding light guide 6, the arrows coming out of supervisory insert 16 and leading into supervisory extract unit 17 are in the same forward direction as optical amplifiers 8 and 11. Thus, it is

incontrovertible that the supervisory channel of Maddocks is co-propagating, **not** "counter-propagating" with respect to the data signal.

The Office Action similarly suggests that Rowley teaches the "counter-propagating supervisory signal." The Applicant respectfully disagrees. **There is no supervisory signal in Rowley**, counter propagating or otherwise.

For performing fault detection, Rowley provides "data transmitted from one end is inverted prior to transmission and reinverted at the receiving end, while information from the other end is transmitted without inversion...if there is a break, the stations at both ends will receive inverted data *(due to reflections occurring at the break point in the optical channel)* and the fault is quickly revealed" (Abstract, parenthesized/italicized comments added). The term "inverted" does not refer to propagation direction, but to the logic state of digitally encoded baseband data signal reversed before it is modulated and transmission. The inversion is function is performed by inverter 10 (Figure 2).

Rowley's "supervisory and error detector circuits" (fig. 2) reside after receivers 15 and 15', functioning fully in the digital domain, and digitally monitoring for discrepancies *only* in the encoded data signal. Once received (i.e. demodulated) by receiver 15', a signal transmitted by transmitter 14 is inverted again (i.e. restored to its pre-inverted state after having been inverted by inverter 10) by inverter 11. Were there a break in the transmission line 3, both supervisory and error detector circuits 16 and 16' would receive inverted data from transmitters 14 and 14' reflected back from the break point, indicative of a fault. Fault detection is predicated entirely on examining the baseband of the communicated signal (i.e. from transmitters 14 and 14' alone), not from a separate supervisory channel. Hence, Rowley clearly does not teach any type of supervisory channel, much less the claimed "**counter-propagating** supervisory channel."

In view of the above, Applicants submit that independent claims 1, 10, 16 and 20 fully satisfy the requirements of 35 U.S.C. §103 and are patentable thereunder.

Claims 3-9, 12-14 and 18-19 depend, either directly or indirectly, from independent claims 1, 10 and 16 and recite additional features thereof. As such, and at least for the same reasons set forth above with respect to Applicants' independent claims

1, 10 and 16, Applicants submit that these claims also fully satisfy the requirements of under 35 U.S.C. §103 and are patentable thereunder.

Therefore, claims 1, 3-10 and 12-14, 16 and 18-20 are allowable over Maddocks in view of Rowley under 35 U.S.C. §103. As such, Applicants respectfully request that the rejection be withdrawn.

Conclusion

It is respectfully submitted that the Office Action's rejections have been overcome and that this application is now in condition for allowance. Reconsideration and allowance are, therefore, respectfully solicited.

If, however, the Examiner still believes that there are unresolved issues, the Examiner is invited to call Eamon Wall at (732) 530-9404 so that arrangements may be made to discuss and resolve any such issues.

Respectfully,

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